

REMARKS

Claims 1, 2 and 15-26 stand rejected under 35 USC 112, second paragraph, as being indefinite. The previous claims have been replaced with new claims 27-56 and it is believed that the new claims are not open to rejection on the ground of indefiniteness.

The original claims stand rejected under 35 USC 102 and/or 35 USC 103. It is believed that the new claims 27 and 42 are patentable over the cited references.

The present invention is concerned with an improved apparatus for performing scattered radiation measurements in fluids. In the conventional apparatus, shown in Fig. 1, an optical emitting device 1 is positioned relative to a window 4 so that light from the emitting device passes through the window and light scattered from a target location in the fluid passes through the window towards a receiving device 2. In order to measure scattered radiation, the measurement direction (the direction of the path along which radiation leaves the target location in order to reach the receiving device) is at about 90° to the path along which light from the emitting device passes towards the target location. The conventional apparatus is bulky. In accordance with the invention, as defined in claim 27, the emitting device comprises a radiation source and a deflecting element positioned to receive radiation from the radiation source and to deflect the radiation towards the first window portion. By use of the deflection element, a more compact construction can be achieved, as shown by comparing Fig. 1 with the embodiment illustrated in Fig. 2.

Endo et al is concerned with detecting absorption of light by liquid between two spaced, parallel plates 7 and 9. Light from a laser diode 1 is directed into the liquid through the plate 7 and a photodiode 3 detects light that leaves the liquid through the plate 7. In the case of Endo et al, therefore, the measurement direction is at 180° to the direction of light incident on the target location. In the case of Endo et al, the detected beam is reduced in intensity both by absorption and scattering, and the apparatus disclosed by Endo et al is not able to determine separately the amount of scattering that takes place. In accordance with the present invention, since the measurement direction is at about 90° to the incident radiation direction, the detected radiation depends only on scattering of the incident beam.

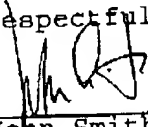
Claim 27 recites that the second window portion is substantially coplanar with the first window portion. This feature is not disclosed or suggested by Albert.

Sakata has been cited against claim 19 and Aose et al has been cited against claims 16, 18 and 20. The new claim 27 does not include the features of claims 16, 18, 19 or 20, and accordingly applicant submits that Sakata and Aose et al are not pertinent to claim 27.

In view of the foregoing, applicant submits that the invention as defined in claim 27 is not disclosed or suggested by Endo et al and Albert, whether taken singly or in combination. Accordingly claim 27 is patentable, and it follows that the dependent claims 28-41 also are patentable.

Claim 42 is patentable over the prior art for similar reasons to those advanced in support of claim 27. It follows that the dependent claims 43-56 also are patentable.

Respectfully submitted,

  
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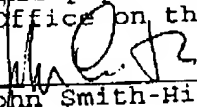
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John Smith-Hill

Date 11/13/02

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Markus PROBST

Art Unit: 2878

Application No: 09/811,059

Examiner:  
Thanh X. Luu

Filed: March 15, 2001

For: APPARATUS FOR MEASURING SCATTERED  
RADIATIONVERSION WITH MARKINGS TO SHOW CHANGES MADE

Rewrite the title to read as follows:

APPARATUS FOR MEASURING SCATTERED RADIATION EMPLOYING AN  
EMITTING DEVICE OR A RECEIVING DEVICE THAT INCLUDES  
A DEFLECTION ELEMENTRewrite the paragraph beginning on page 1, line 29, to read  
as follows:

The object of the present invention is therefore to design an apparatus to measure scattered radiation in a more compact way. [This object is achieved by the elements of Claim 1. Preferred embodiments of the invention are set forth in the dependent claims.]

Rewrite the paragraph beginning on page 4, line 1, to read  
as follows:

The representation shown in Figure 2 is repeated in Figure 3 in a view from the fluid side 5. One can see an approximately circular separating pane 4 behind which the first and second reflecting prisms 8, 9 are located, as are the light source 1 and the detector 2. Even though this apparatus [are [sic: is]] is much more compact than the prior-art apparatuses as shown in Figure 1, this apparatus is somewhat elongated in the horizontal direction.



Rewrite the paragraph beginning on page 4, line 13, to read as follows:

[A] Referring to Figure 5, a further reduction in the dimensions of the entire apparatus can be achieved by crossing the paths of the beams from the light source 1 and the scattered light 2 received by the detector in a lateral projection. This once again allows the reflecting prisms 8, 9 to be disposed closer to each other, so that a correspondingly smaller separator can be used. In this embodiment, the measuring point for measuring turbidity can be positioned in the fluid extremely close to the separating pane 4.

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